NSW GOVERNMENT Office of Environment & Heritage

How to access the BioNet Web Service using Excel and Power Query

A BioNet Quick Guide

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How to Access the BioNet Web Service using Power Query

This document provides a quick guide on how to extract data from the BioNet Web Service using Excel with Power Query version 2.24 or higher.

It is intended to get you started and does not provide exhaustive guidance on using Power Query. The following links also provide background information on using Power Query:

- Microsoft Power Query for Excel Help
- Power Query Tutorial 101
- Getting started with Power Query and Power Map

In addition, there are many Power Query training videos available on the internet.

Who is this guide for?

This guide is intended for users who have a specific reporting or data needs that are not currently met via our web applications; for instance, complex queries to answer specific pre-defined questions.

The data made available through the web service is the same data that is currently available through the *BioNet Atlas of NSW Wildlife* and the *BioNet Vegetation Information System: Classification* (VIS-C) web applications. If you are looking to simply browse and explore the data we hold we recommend you access the data via these web applications using the following links:

- BioNet Atlas of NSW Wildlife: http://www.bionet.nsw.gov.au/
- BioNet VIS-C: http://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx

1. Before you begin

You will need to ensure that you meet the following before you start to use this guide:

1. Excel 2010 or 2013 running on a Windows based PC

2. Microsoft Power Query Excel plugin version 2.24 or higher installed (this can be downloaded and installed via the following link: Download Power Query)

   Note: if you already have Power Query installed, see section 5 to check that you are using the correct version.

   Note: Excel 2016 incorporates Power Query into a new set of features called 'Get & Transform' available in the 'Data' ribbon. If you are a user of Excel 2016 please see: Get & Transform in Excel 2016.

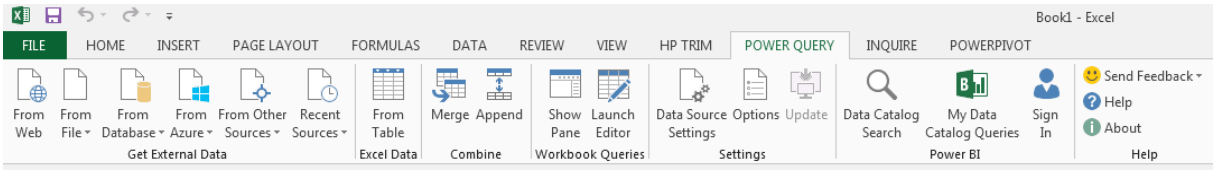
3. Copies of the data standards available at https://data.bionet.nsw.gov.au

You accept the Terms and conditions of use when extracting data via the BioNet Web Service.

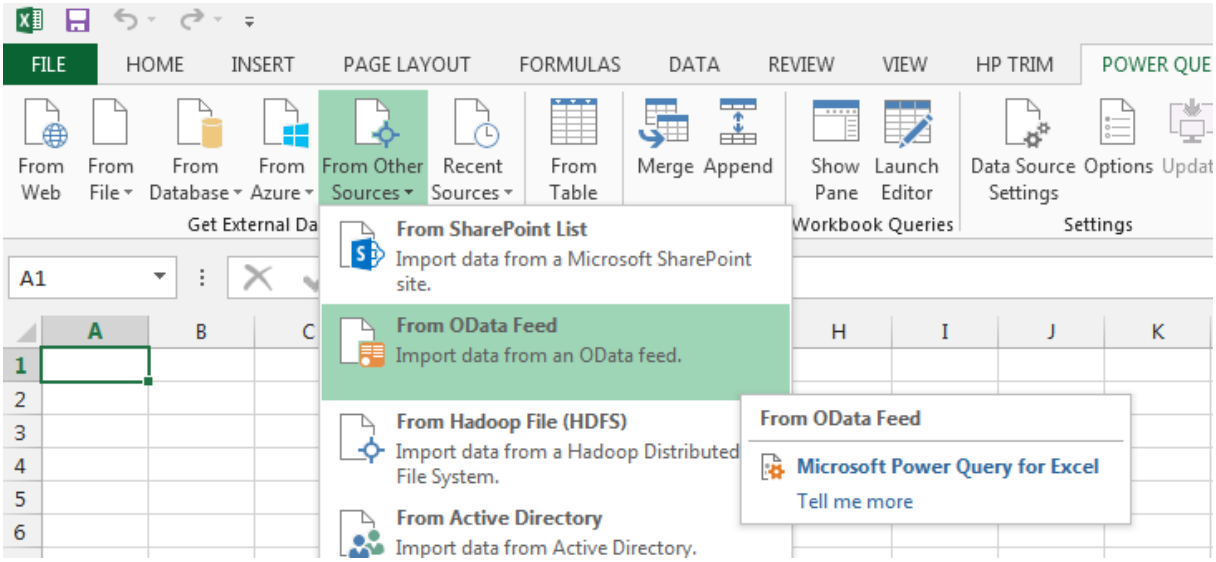
If you see a box like this**, it contains important information to stop problems or errors occurring**. Make sure you read box information and read the whole document before you start.

2. Connect to the BioNet Web Service

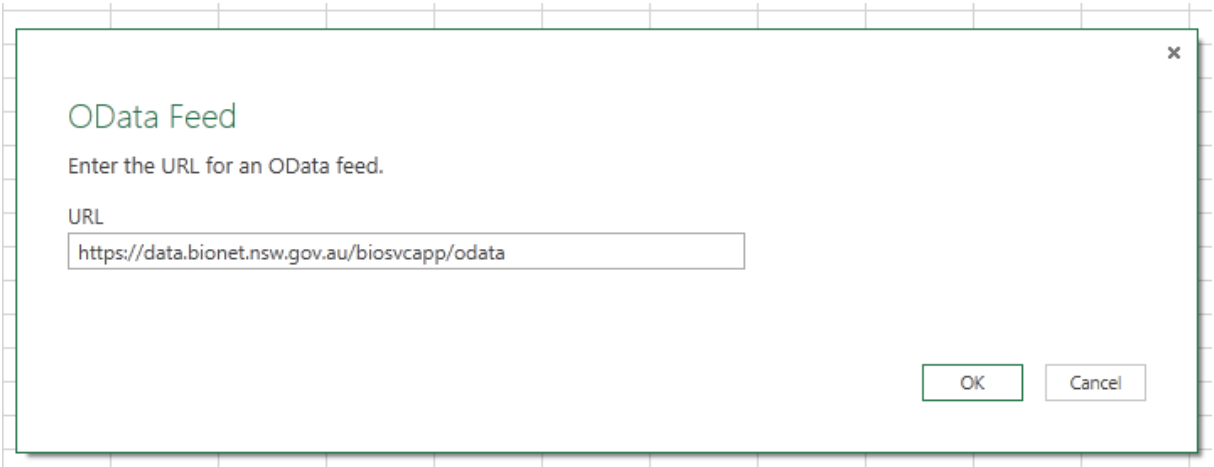
Step 1: Open the Power Query tab in Excel.



Step 2: In the 'Get External Data' section of the Power Query ribbon, select 'From Other Sources' and click on 'From OData Feed'.



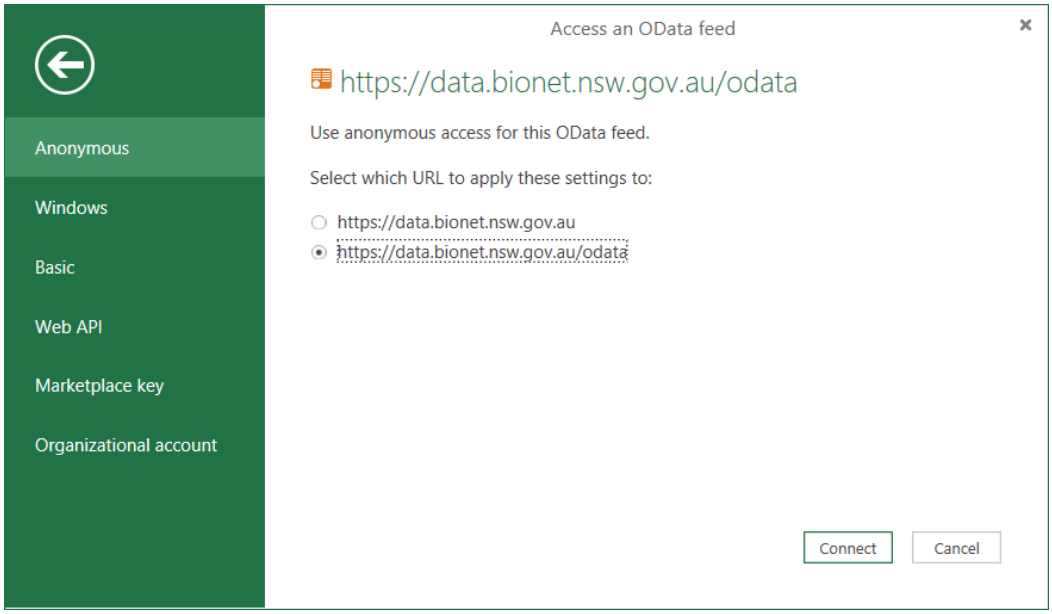
Step 3: In the OData Feed URL dialogue box enter https://data.bionet.nsw.gov.au/biosvcapp/odata and click OK.



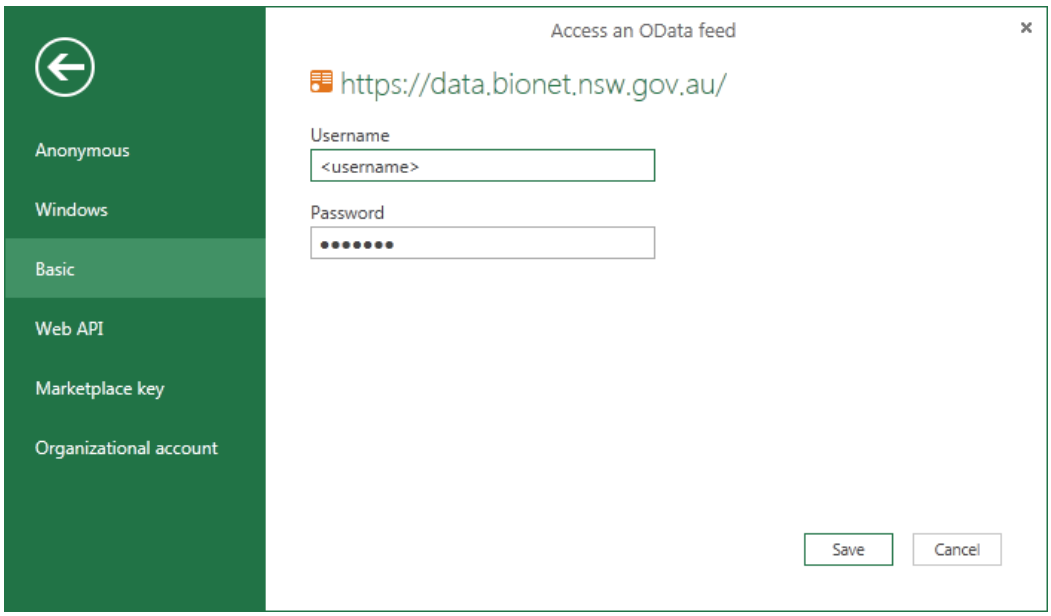
Step 4: If this is the first time you have connected to the service, a window will appear asking you to select which URL to apply these settings to. If you have connected to the service before you will not see this window, please go to Step 5.

If you click **Connect** at this stage, you will access the **public view** of the data. . . If you are a licensed user or OEH staff member please see Step 4(b).

a) If you are accessing the public data, click on Connect.



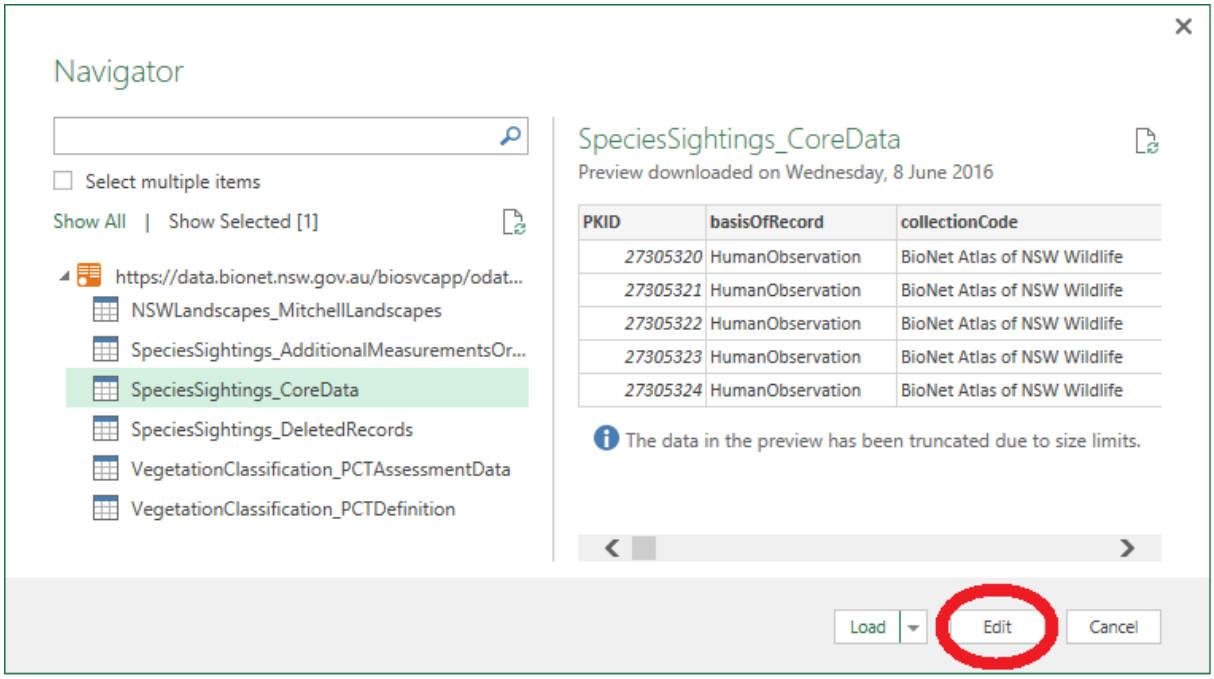
b) If you need to access data as an authenticated user using your user name and password, you will need to select 'Basic' and enter your username and password. . . Then click Save.



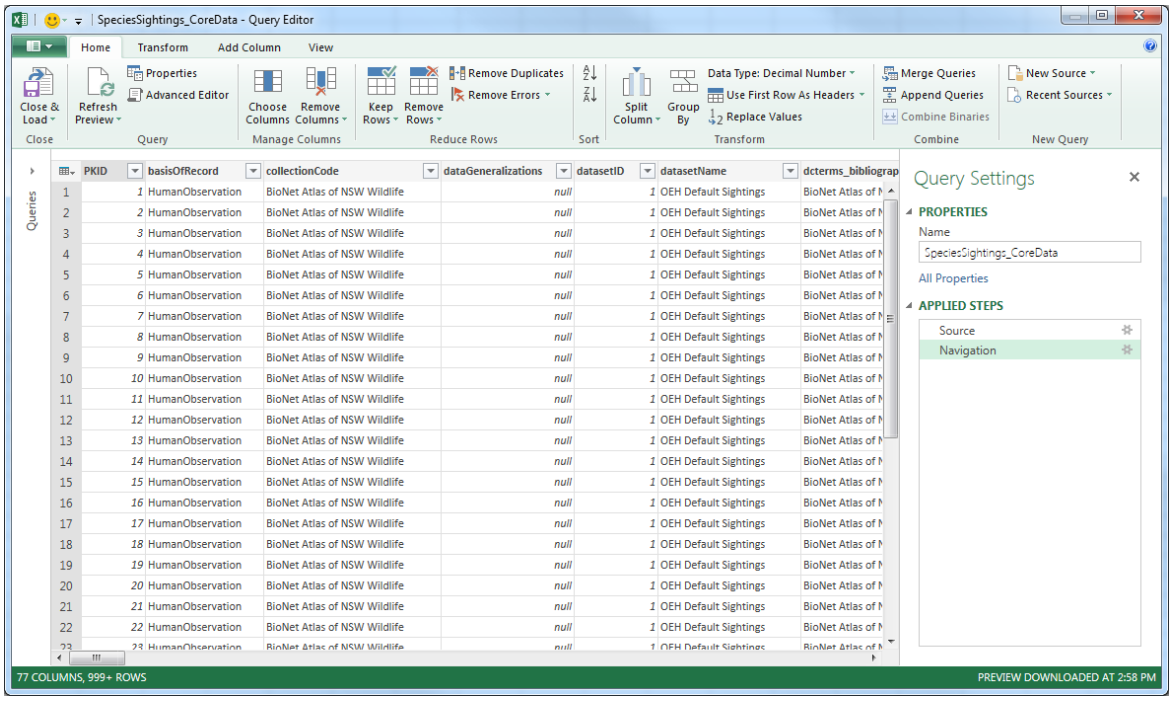
Step 5: Highlight the entity set (table) that you want to access and click Edit. For more information on what is contained in each entity set, refer to the following data standards available at https://data.bionet.nsw.gov.au

- *BioNet Web Services Species Sighting Data Standard*
- *BioNet Web Services Vegetation Classification Data Standard*
- *BioNet Web Services NSW Landscapes Data Standard*

If you click Load at this stage, Power Query will try to extract all records to Excel and exceed the 1 million row limit.



Step 6: You will now see the Query Editor window and be able to create your query. See Section 3 of this guide for help on creating a simple query.



3. Guidance for extracting data

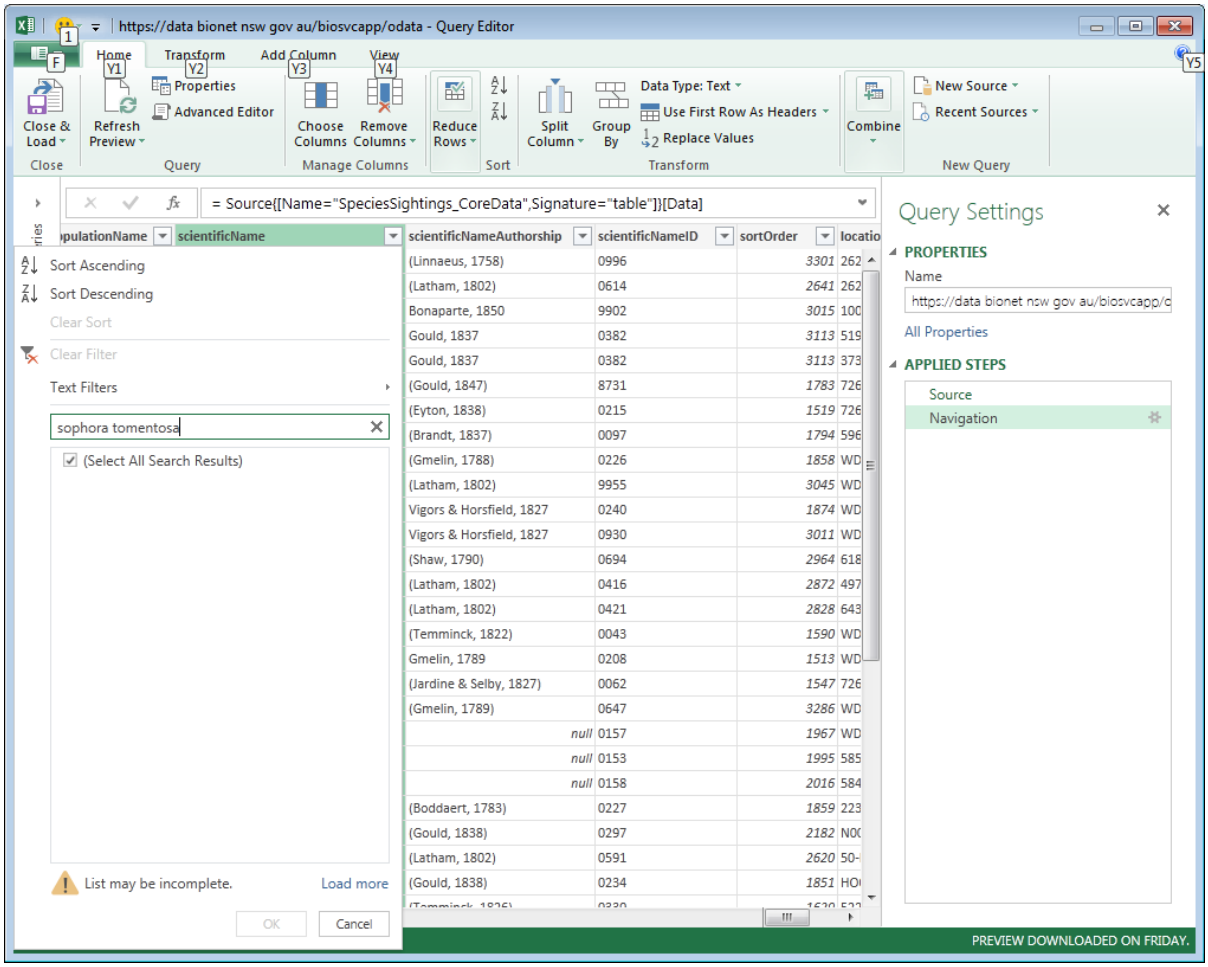
This guidance is intended to help get you started with a simple query. It is not exhaustive and serves to illustrate some important limitations and considerations in creating a query.

3.1 Apply a filter

You must apply a filter to the columns to reduce the data you extract.
If you do not apply a filter, Power Query will try to extract all records and exceed the 1 million row limit in Excel.

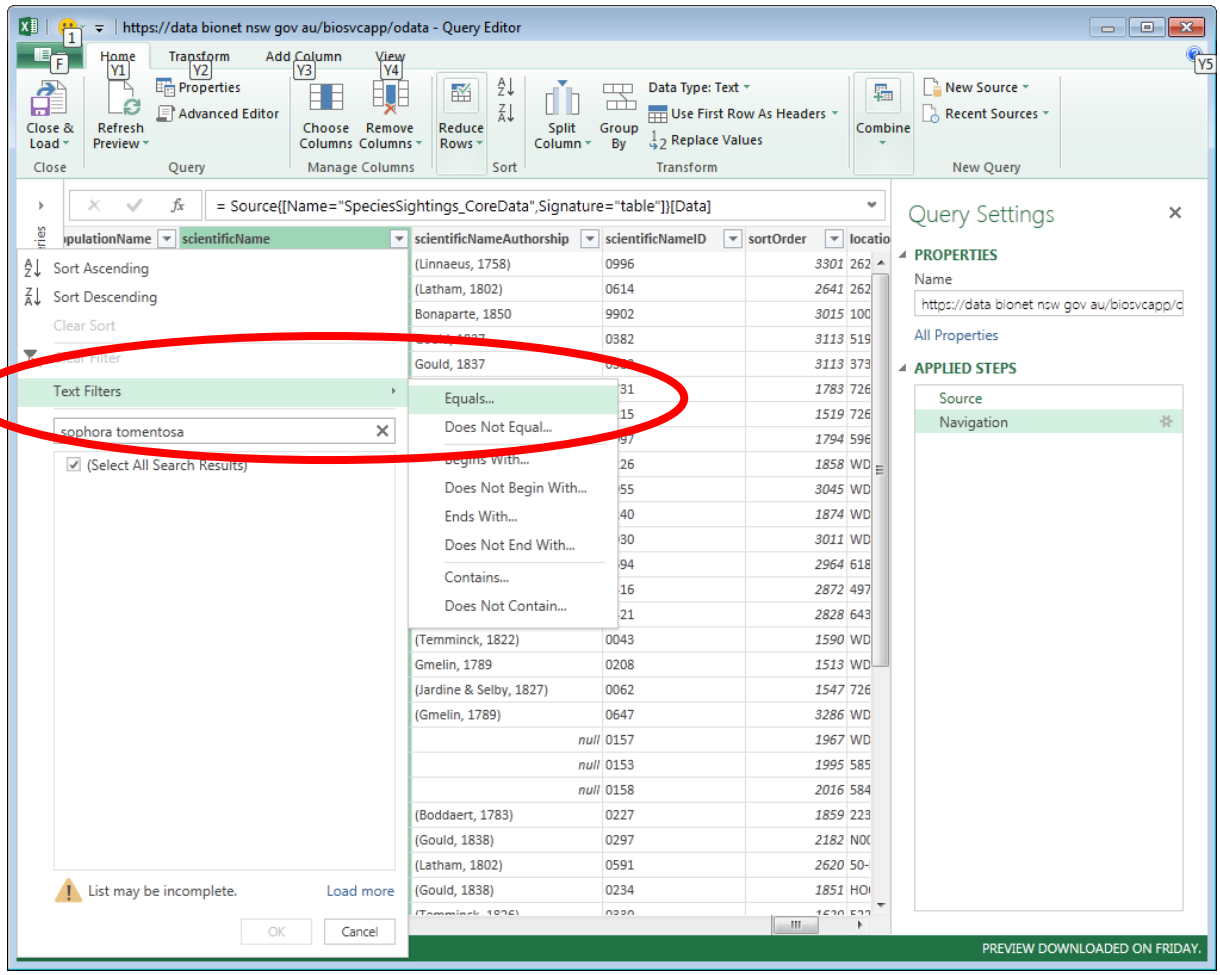
Step 1: Click on the header of the column you would like to apply your filter to. In many cases the filter item you are looking for will appear in the drop down list. Select the item(s) you will filter on.

If what you are searching for does not appear in the filter, **do not click on Load more**. This will try to download all records from BioNet to complete the list. Use the text filter (see screen shots below).

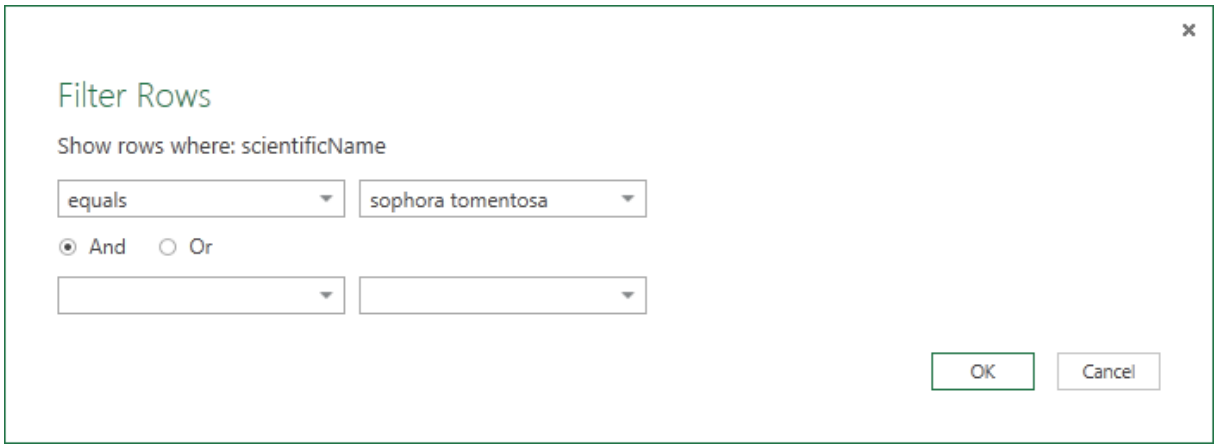


Step 2: If the filter item is not displayed in the drop down menu by default, click on 'Text Filters' and use the 'Equals' option.

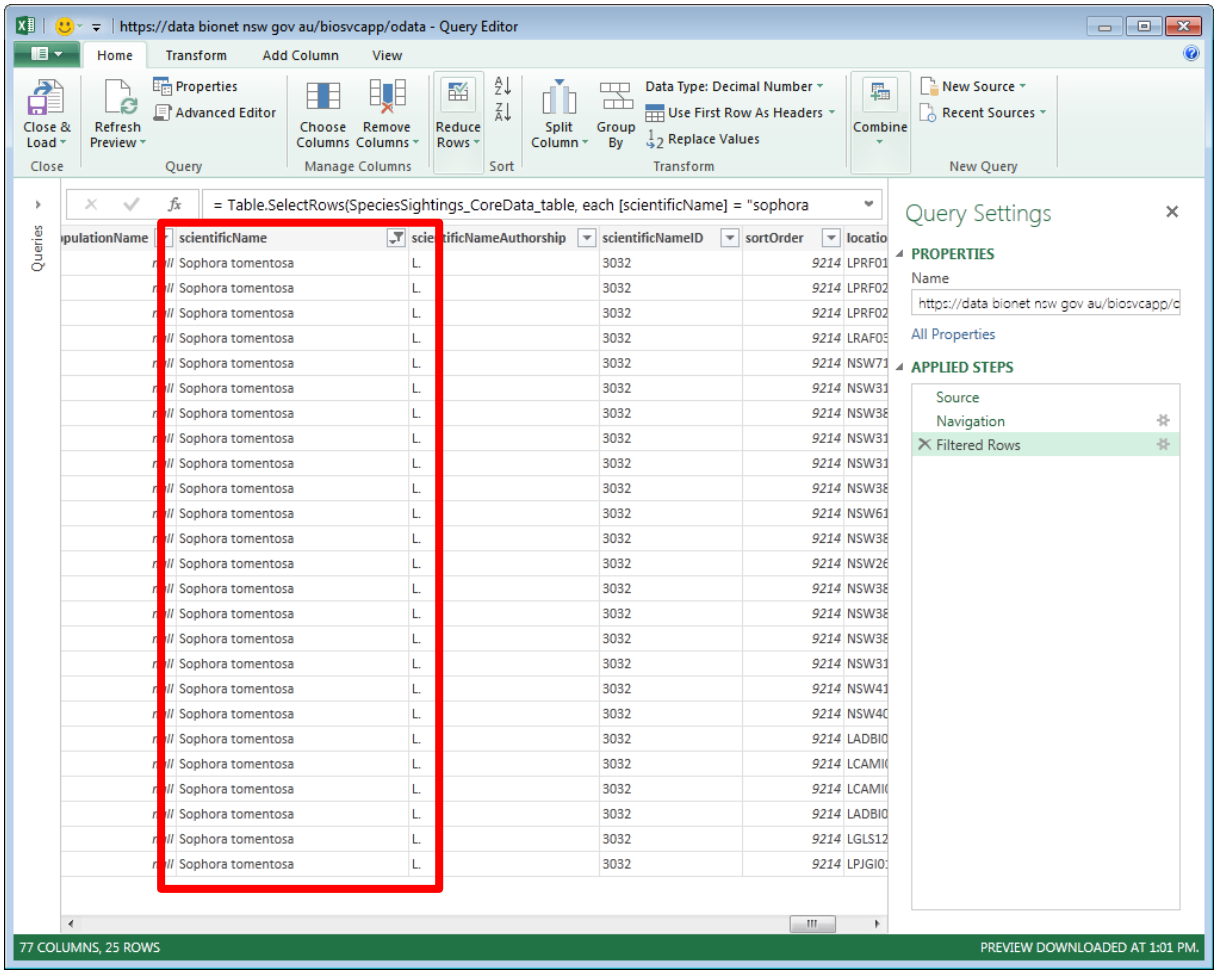
Using options other than **'Equals'** may cause very long running queries and time outs. Do not use the '**Contains**' option as this type of search is not supported by the web service and the query will time out.



Step 3: In the dialogue box that appears, enter what you are searching for. You can include more than one item. Then click OK.



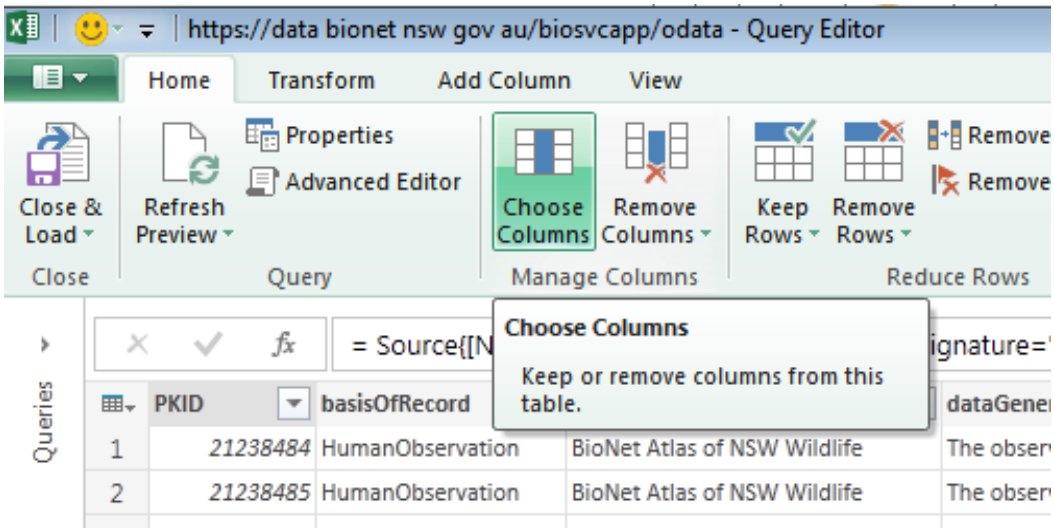
Step 4: The preview will then display up to the first 1000 records meeting your match. Note that in the Query Editor you do not see all records.



3.2 Reduce the number of columns returned

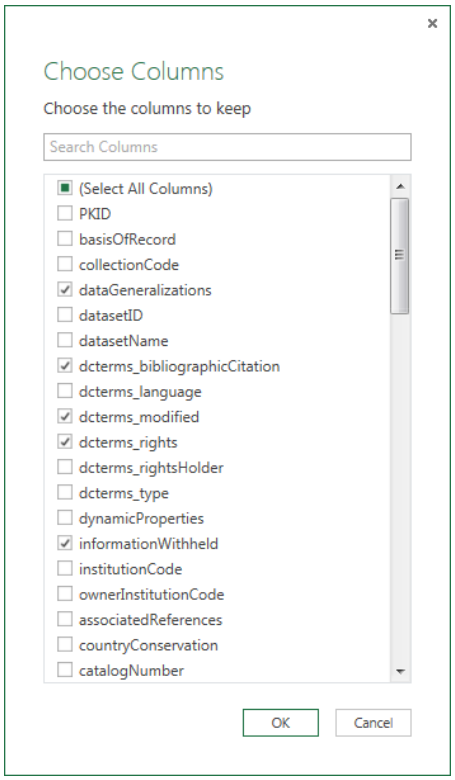
Selecting only the columns of data you are interested in makes the download quicker and more efficient. This is not a mandatory step.

Step 1: Click on the '**Choose Columns**' button.



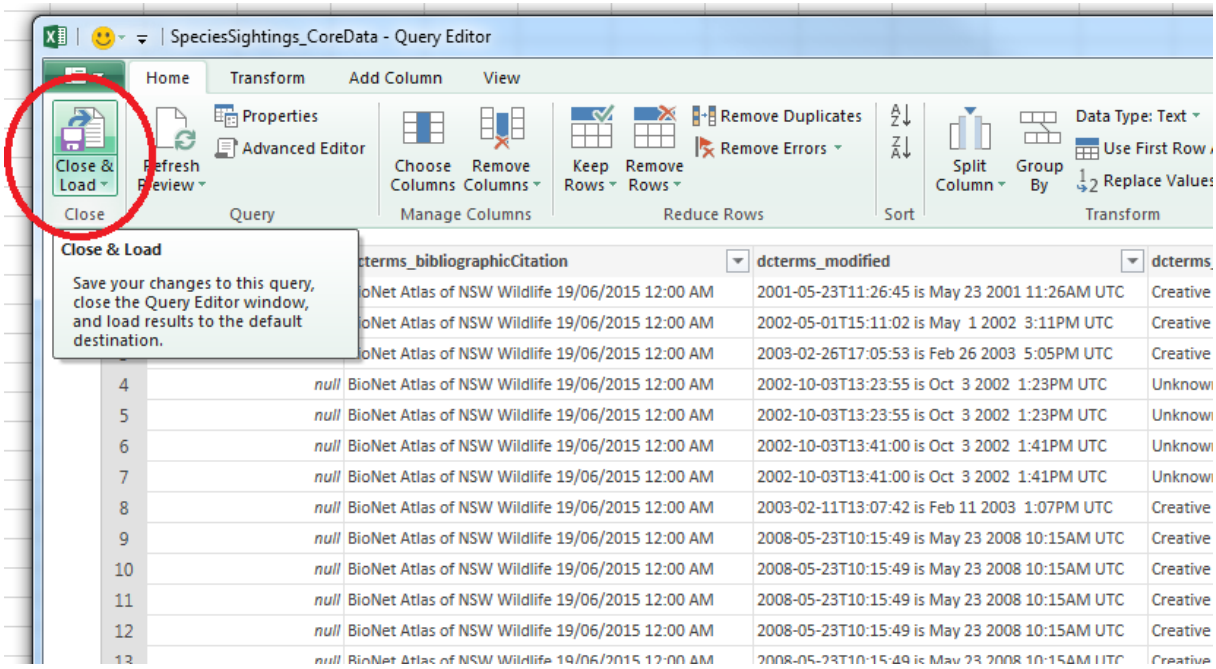
Step 2: Choose your columns from the choose columns window that appears, and click **OK**. At a minimum we recommend extracting the following columns:

- dataGeneralizations
- dcterms_bibliograpicCitation
- dcterms_modified
- dcterms_rights
- informationWithheld
- occurenceID
- eventDate
- decimalLatitude
- decimalLongitude
- scientificName

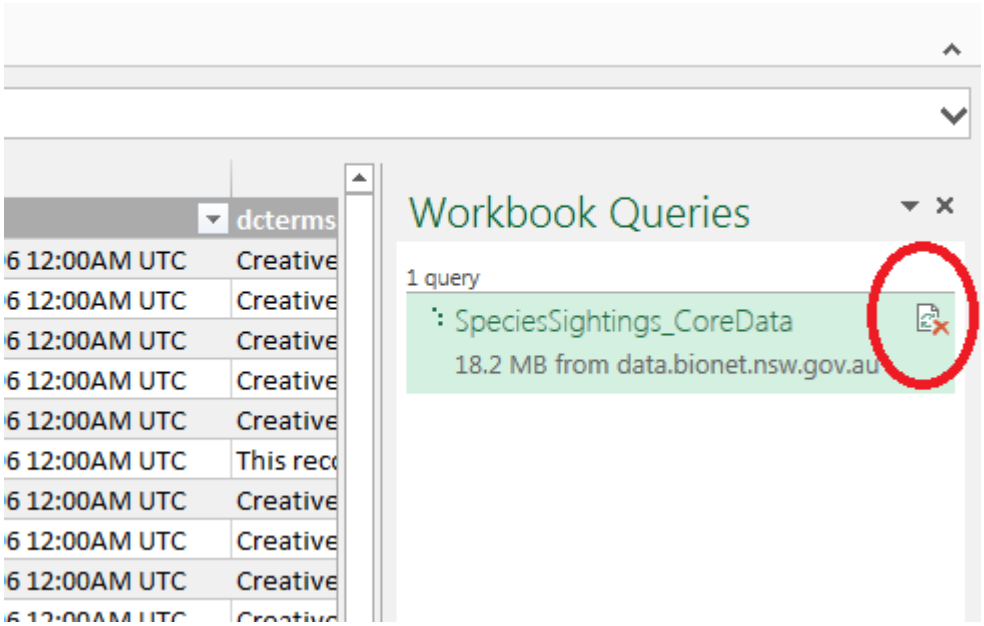


3.3 Extract the data to the excel spreadsheet

Step 1: Click on the **'Close and Load'** button to load your data to your spreadsheet.



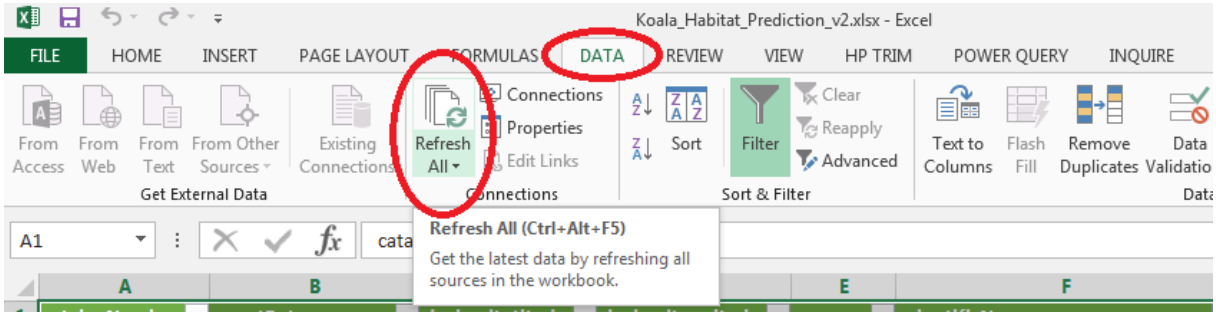
Step 2: You will be returned to the spreadsheet data. Your data will now load. Note in the Workbook Queries side bar you will see the query executing and should see the number of rows increasing until it is finished. If you have accidentally loaded a query that is extracting too much data and would like to stop it, click on the cancel data download icon highlighted below.



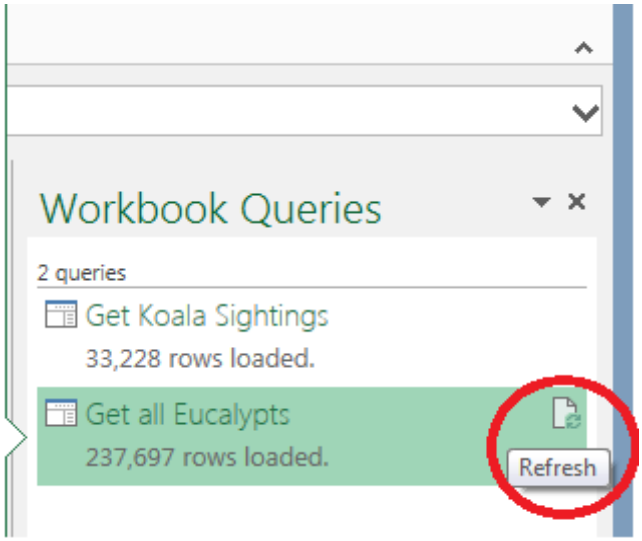
3.4 How to refresh your extracted data.

When you save your workbook, the queries that you have created will be saved with it. The next time you open the workbook you can refresh your queries to extract the most up to date data. There are two options for refreshing data.

Option 1: If you have two or more queries in your workbook and want to refresh them all, from the Data ribbon click on **'Refresh All'.**

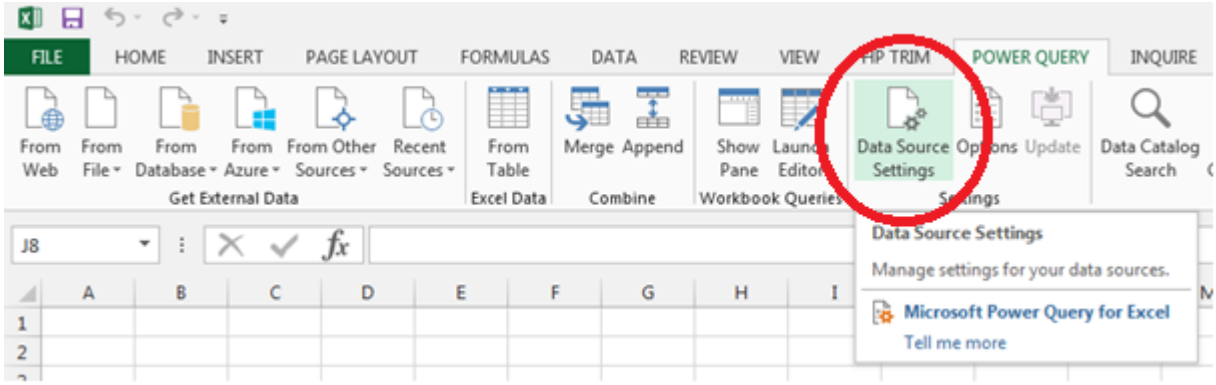


Option 2: If you want to refresh just one of your queries, in the Workbook Queries sidebar click on the query you wish to refresh to highlight it, then click the **'Refresh'** icon next to it.

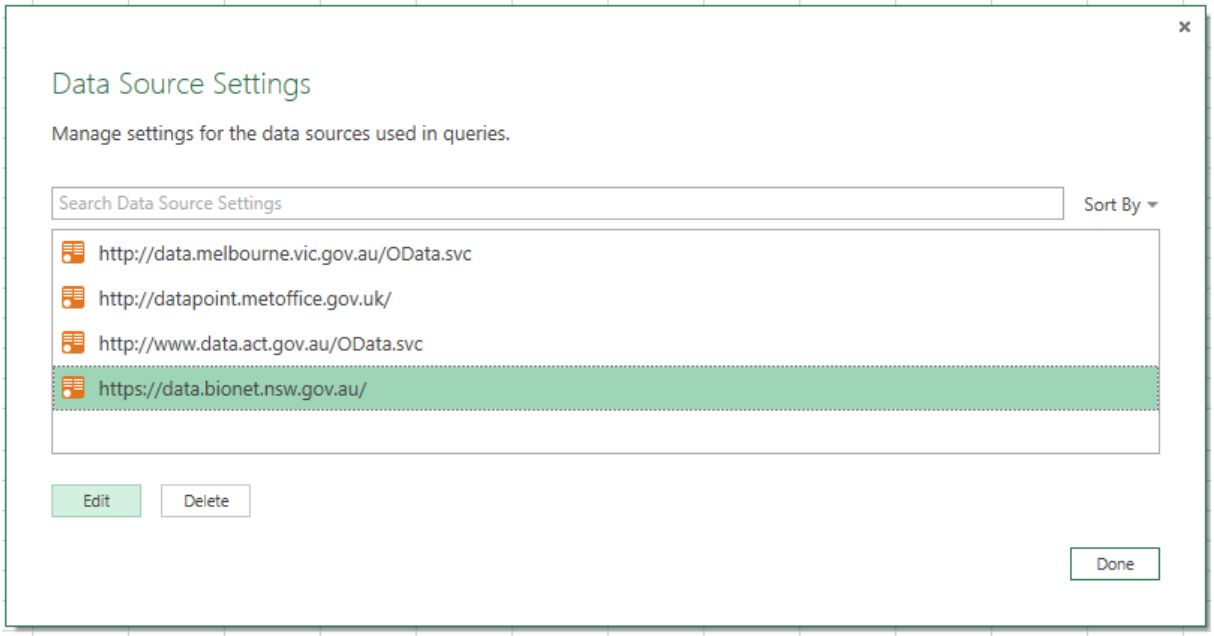


4. How to check or change the user name you use to connect to the service

Step 1: If you are unsure whether you are connecting to the BioNet Web Service as a public user or as an authenticated user, or need to change the user name/update the password, then from the Power Query ribbon click on **'Data Source Settings'.**

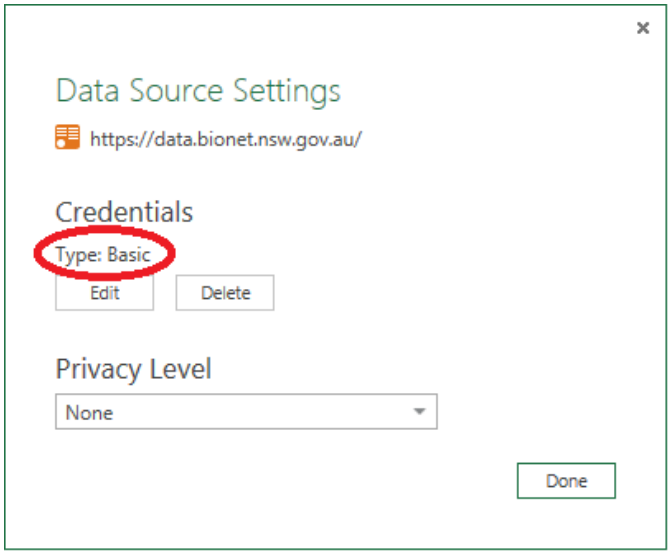


Step 2: In the Data Source Settings, highlight the https://data.bionet.nsw.gov.au link and then click on **Edit.**



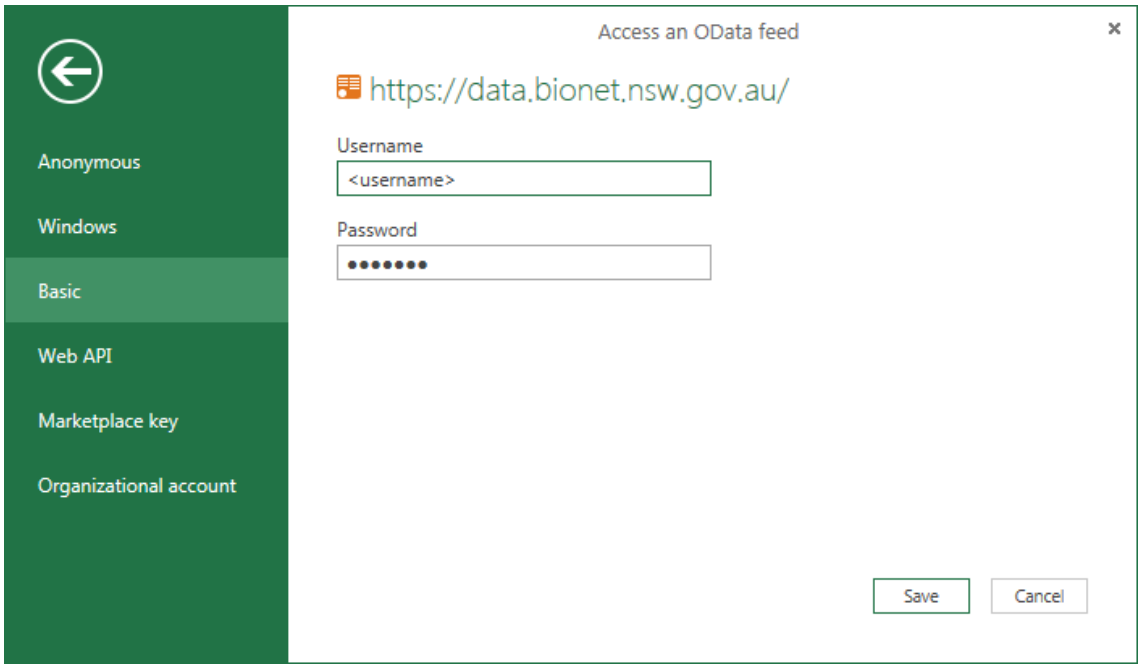
Step 3: This will show you the current settings in a new dialogue box.

- If you are connecting as an **authenticated user** you will see **Type: Basic**
- If you are connecting as a **public user** you will see **Type: Anonymous**



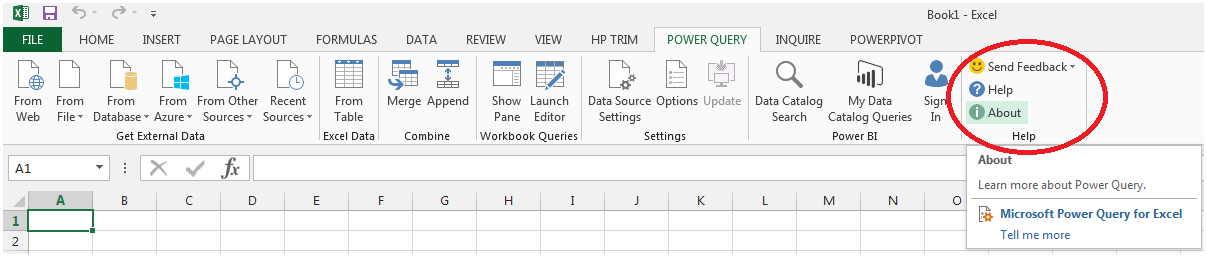
Step 4: To see the user name you are using, click on Edit and you will see the following dialogue box.

- If your settings are correct and there is nothing to change click **Cancel** and exit, or
- To change the user name or way you connect, click on the appropriate selection on the left hand menu and enter any credentials required then click **Save**.



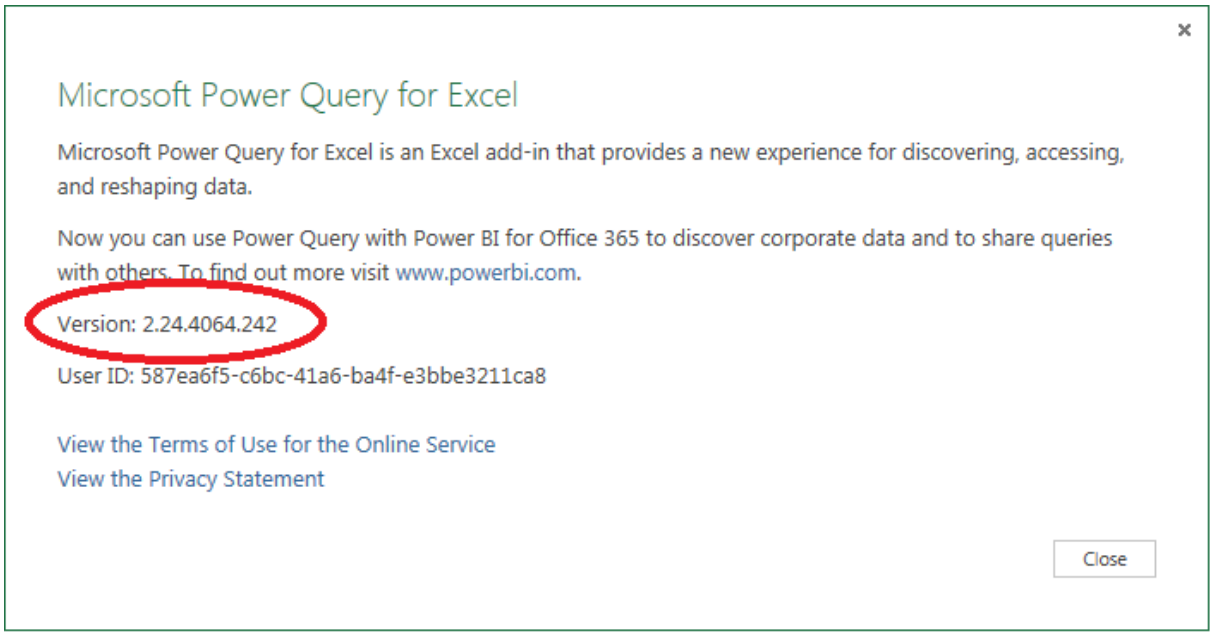
5. How to check the version of Power Query

Step 1: From the Power Query ribbon click on **'About'**



Step 2: A new window will open. In this window check your Version number.

Note that the Web Service does not work with Power Query version 2.23 or lower. This guide has been written for version 2.24, so if you are using version 2.25 or higher the screen shots and functionality may not align with this guide.



For further information:

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